

What Might Engage Intermediate Learners in PBL?

16-12-15

4th grade language arts: The students' community wants to build a new convention complex along the river. City planners have received several letters of concern from environmentalists, community residents and developers. How can students meet the needs of all these groups?

4th grade science: A judge in Northern California issued a halt to all land sales and logging activity because of the endangered spotted owl population. The judge asks the class to develop a workable plan that will satisfy the various parties: the owls, trees, land developers, environmentalists and loggers.

4th grade science: The students are scientists in a rural Illinois county where the coyote population is increasing. What does that surge mean for the area? What threat do coyotes pose to residential areas? What are the implications for action at the local or state level?

4th grade social studies: The class receives a letter from a travel agent in another town. The letter asks the students to advise the tourist board on places of interest to 4th graders and their families traveling to the area. (Students explore the local highlights, costs and travel schedules.)

4th grade social studies: The students, as business development officers, determine whether a bank should open a branch in their school. (Students study how producers decide what goods and services to provide, factors that affect consumers' choices and competition.)

4th-5th grade science: Students are stockholders of a major Louisiana oil refinery in the southern part of the state. Publicity about the potential destruction of the wetlands increases public pressure to turn the property over to the federal government. What actions should the stakeholders take?

5th grade health: The principal is concerned that students are not receiving proper nutrition because of the large amount of lunchroom waste. How can students advise the principal on lunch menus that will be nutritious and appealing to them?

5th grade mathematics: The district budget for after school sports does not include 5th grade. The students develop a presentation for the school board stating their concerns. (Student will research, collect and analyze data and conduct interviews.)

5th grade science: Students are members of a citizens' group in the Fox Valley area who receive several letters from community members who are concerned with the appearance of the Fox River. How do they determine if there is a problem and, if so, what actions to take?

5th grade social studies: The students are English villagers whose king is preparing to send a ship to the New World to establish a colony. How does the village decide what skills are needed and what materials they need to take in order for this new colony to be a successful venture?

PBL 4/29/15
Staff mtg. handouts

6th grade mathematics: The principal asks the students, who are sharing lockers, to calculate how much storage space a typical student needs, because the school is going to purchase new lockers. How many and what kind of lockers should the school purchase, given its budget. (Students study geometric concepts of volume and surface area, costs, aesthetics and alternative storage approaches.)

6th grade mathematics: The president of a dairy company asks students to design a new milk carton that is both appealing to the consumer and practical for shipping and displays. (The students explore volume, surface area, perimeter and circumference.)

6th grade social studies: The students are advisors to a state representative on a bill to regulate livestock waste management just as a company proposes a “mega” hog farm for the county. What environmental, economic, political and societal consequences should they consider?

1st and 7th grade science: The Department of Fish, Wildlife & Parks asks students to make recommendations about the proper placement of orphaned and injured animals. 1st graders make recommendations that the 7th graders, as members of the Animal Rehabilitation Review Group, evaluate. (7th graders research rehab/release methods, graph success rates, and locate and contact primary sources.)

7th/8th grade mathematics: The business office investigates ways to conserve energy use in schools. The principal appeals to mathematics classes to analyze current and future energy usage and make recommendations. (Students study alternative energy sources, complete cost/benefit analyses, and create and interpret graphs to substantiate their findings.)

7th grade physics: Students are members of a Park Advisory Committee. The police department is tired of warning and disciplining skateboarders violating the city ordinance, and asks students for advice about creating a safe, non-invasive place for skateboarders and roller bladers within the community. What are the issues involved?

7th grade life science: Students studying ecology receive a letter from the Illinois Farm Bureau that discusses the overpopulation of deer and the increase in related traffic accidents and fatalities. The students consider the situation and offer possible solutions. (Students explore habitat, hunting regulations, diseases caused by overcrowding, and methods of population reduction.)

8th grade science: Concerned parents lobby the school board to replace fluorescent lights with incandescent lights because they believe that fluorescent lighting harms students’ eyesight. The principal asks students to investigate the science behind the claim. (Students study different types of light, the electromagnetic spectrum, Calculator Based Laboratory system and light meters, and spectroscopy.)

Earth science: The state, in cooperation with the Army Corps of Engineers, asks Earth science students to investigate flooding and its impact on the current system of levees along the Mississippi River. The students advise these governmental agencies on what improvements, if any, are needed to the current levee system. (Students explore the impact of flooding in the river basin and possible solutions to reduce its impact.)

Ecology: Students, as members of the committee on the Environment and Natural Resources, are reviewing Minnesota House Bill #1891, which lays out a gray wolf management plan for the state. Should the bill pass? What are the consequences of its passage or defeat?

Geometry: The current high school building is under construction for additional space and renovation. Students will prepare a proposal for the administration with recommendations and substantiation of their choices as they consider the variables of various desk/chair designs, including size, cost, effective use of workspace, comfort in design, and color.

Math/Physics: A pre-school institution that wants to investigate the effects of music on child behavior approaches student researchers on music therapy. The institution is interested in how music therapy can improve children's motor and communication skills. As researchers, students consult:

1. a physicist to understand how music is generated,
2. a mathematician to understand the characteristics of sound waves, and
3. a behavioral scientist to determine how consonance, dissonance and changes in pitch and volume affect child behavior.

World history: Student spies for the Hun/Barbarian leaders gather information about the Roman Empire as a basis for an attack plan.

9th grade science: Students are investigators from the Environmental Protection Agency, which is investigating the conditions that may be responsible for the high cancer rates in Livingston County, Illinois. (Students will explore sources of carcinogens, geological and environmental aspects of the county, and the nature of cancer.)

12th grade fine arts: The Art League has asked fine arts students to design a logo and a brand for the upcoming community art show. (Students incorporate the principles of good design with the basics of marketing strategies as they consider the medium and costs of the promotion.)

PROBLEM BASED LEARNING GRAPHIC ORGANIZER

